CUBIT Capability Proposal

Technical Area Geometry, Meshing, Infrastructure, GUI, Graphics, etc..	**Technical Lead** Cubit Developer in charge of technical area
Mesh Optimization	Michael Brewer

MRD Description
Describe the capability in terms of how a user would see it.

Focus smoothing for all smoothing schemes and element types.

SRS Description
What needs to be done by Cubit developers to implement this capability? Break the tasks into steps if applicable. (Steps should be on the order of 2 man-weeks or more)

1) Add the ability to smooth a list Tet or Hex elements to the Mean Ratio and Smart Laplacian smoothers. 2) Add the ability to smooth a list of Tri or Quad elements to all smoothers.

Justification
Describe why this is important and what impact it will have if it is implemented. (or not implemented).

Focus smoothing is very helpful in some situations where users want specific regions of their mesh improved without changing other regions or when they do not want to spend the time necessary to smooth the entire geometric region. We need to add the ability to smooth a list of Hex and Tet elements to the Mean Ratio and Smart Laplacian smoothers, and we need to add the ability to smooth a list of Tris and Quads to all of the smoothers. I estimate that both tasks would take 2-3 weeks each.

Resources Who will work on this	**Time estimate** How much time will it take in man-weeks	**Targeted Release** 10.2 (August 06), 10.3 (March 2007), 10.4 (August 2007), Future (beyond FY07)
Michael Brewer	5	10.2

Submitted By:	**Date:**
Michael Brewer	3-30-2006